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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,659	02/26/2002	Tomohiro Nishi	450100-03743	8660
20999 7590 06/14/2007 FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			EXAMINER YENKE, BRIAN P	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 06/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/085,659

Applicant(s)

NISHI ET AL.

Examiner

BRIAN P. YENKE

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Appeal Brief (06 Feb 07).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

**1207.04 [R-3] < Reopening of Prosecution After Appeal**

The examiner may, with approval from the supervisory patent examiner, reopen prosecution to enter a new ground of rejection after appellant's brief or reply brief has been filed. The Office action containing a new ground of rejection may be made final if the new ground of rejection was (A) necessitated by amendment, or (B) based on information presented in an information disclosure statement under 37 CFR 1.97(c) where no statement under 37 CFR 1.97(e) was filed. See MPEP § 706.07(a). >Any after final amendment or affidavit or other evidence that was not entered before must be entered and considered on the merits.<

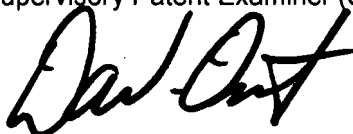
1. In view of the Appeal Brief filed on 30 November 2006, PROSECUTION IS HEREBY REOPENED.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

 **SPE, AU 2622**  
**Response to Arguments**

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burstyn, WO 01/33846 in view of Frankowski et al. (disclosed in US 20050035314, para 84) and Schumann et al., US 6,950,532.

Regarding claims 1, 8 and 10-23

Burstyn discloses causing a periodic modulation in optical intensity of an original display image in the temporal domain so as to generate an optical state variation in a recorded image that is obtained by image capturing a display image (page 2, Imines 4-10), wherein the optical state variation is independent of the original display image and generates no interfering effect in the display image, when directly viewed (page 2, Imines 10-14).", where Burstyn disclose modulating the red, green and/or blue components (which includes the luminance of a signal).

Regarding the newly added limitation "utilizing a rotation filter...".

Burstyn does not explicitly recite a rotating filter (i.e. conventional color wheel which includes the claimed limitations). However, Burstyn does disclose various embodiments/options in the system; one may use a light source with a filter (510, Fig 3a) where varying the filter via controller 500 generates the interfering signal. Burstyn also discloses the use of shutters as well as digital logic processor (varying the cycle of mirrors). It is also noted that the applicant's own specification discloses that in addition to a rotating filter other methods may be used, such as shutters.

Although the concept of varying a filter (by using a rotating filter—i.e. color wheel) is notoriously well known in the art and would perform the same function as disclosed by Burstyn's varying filter which uses a digital pulsating wavefore, the examiner nonetheless incorporates takes Schumann, US 6,950,532 (Fig 11, element 1116) which discloses the concept of a rotatable filter in conjunction with a DMD.

It is also noted that the combination of Burstyn/Schumann does not disclose the conventional capability of such a filter (i.e. color wheel) to having a sinusoidal density variation along it's circumferential direction, in said luminance modulation. Although the practice of such is conventional in the art in the field of highly accurate displays, the examiner evidences such by relying on para 84 of 20050035314 (notably the citation of Frankowski), wherein "a stripe pattern whose luminance changes continuously in the form of a sinusoidal waveform is projected with high accuracy by means of the DMD."<sup>4</sup>

Therefore, it would have been clearly obvious to one of ordinary skill in the art at the time of the invention to modify Burstyn which discloses copyright protection via a varying filter, by using filters which are readily available such as (color wheels) wherein such wheel in combination with a modulator (i.e. DMD) provide highly accurate display as taught by Frankowski.

Regarding claim 2,

The combination above discloses "wherein: an optical intensity is modulated in a sinusoidal waveform in the temporal domain, and an amplitude and a frequency of the sinusoidal waveform are such that the amplitude and frequency of a resulting optical intensity modulation over time in each recorded frame, captured by an image capturing apparatus, are that of a region having contrast greater than or equal to a temporal frequency contrast sensitivity threshold of the human vision at a Luminance Level in the original display image." (Figure 2 shows the varying waveform', page 5, Line 28 -page 6, Line 2)

Regarding claim 3,

The combination above discloses "wherein: the amplitude of the sinusoidal waveform is such that the amplitude of the optical intensity modulation is less than or equal to an amplitude value derived from the temporal frequency contrast sensitivity threshold of the human vision at the frequency of the

sinusoidal waveform that is defined in claim 4, at a luminance Level of the display image." (Figure 2 shows the varying waveform, page 5, Line 28 - page 6, line 2).

Regarding claim 4,

The combination above discloses "wherein: the optical state is modulated in a composite waveform, and at least one combination of amplitudes and frequencies of sinusoidal components of the composite waveform is such that an amplitude and a frequency of the optical state variation in the temporary domain in each recorded frame, captured by an image capturing apparatus, are that of a region having contrast greater than or equal to a temporal frequency contrast sensitivity threshold of the human vision at a luminance Level in the original display image." (Figure 2 shows the varying waveform, page 5, Line 28 - page 6, Line 2)

Regarding claim 5,

The combination above discloses "wherein: the amplitude of the sinusoidal waveform is such that the amplitude of each sinusoidal component waveform is less than or equal to an amplitude value derived from a temporal frequency contrast sensitivity threshold of the human vision at the frequency of the sinusoidal waveform that is defined in claim 6, at a luminance level of the display image." (Figure 2 shows the varying waveform, page 5, Line 28 - page 6, Line 2)

Regarding claim 6,

Burstyn discloses "wherein: different types of optical intensity modulation are applied at different positions in the display image." (page 6, lines 13-18)

Regarding claim 7,

Burstyn discloses wherein: different types of optical intensity/modulation are applied at different time periods." (page 7, lines 4-8).

Regarding claim 9,

Burstyn discloses wherein: the optical state variation in the recorded image is in the color domain." (page 8, lines 8-10).

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Yenke whose telephone number is (571)272-7359. The examiner work schedule is Monday-Thursday, 0730-1830 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, David L. Ometz, can be reached at (571)272-7593.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(571)-273-8300**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703)305-HELP.

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(FAX) 703-305-7786  
(TDD) 703-305-7785

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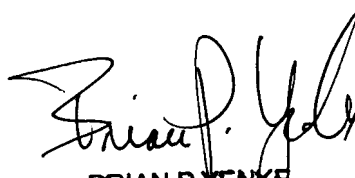
For other technical patent information needs, the Patent Assistance Center can be reached through customer service representatives at the above numbers, Monday through Friday (except federal holidays) from 8:30 a.m. to 5:00 p.m. EST/EDT.

The Patent Electronic Business Center (EBC) allows USPTO customers to retrieve data, check the status of pending actions, and submit information and applications. The tools currently available in the Patent EBC are Patent Application Information Retrieval (PAIR) and the Electronic Filing System (EFS).

PAIR (<http://pair.uspto.gov>) provides customers direct secure access to their own patent application status information, as well as to general patent information publicly available. EFS allows customers to electronically file patent application documents securely via the Internet. EFS is a system for submitting new utility patent applications and pre-grant publication submissions in electronic publication-ready form. EFS includes software to help customers prepare submissions in extensible Markup Language (XML) format and to assemble the various parts of the application as an electronic submission package. EFS also allows the submission of Computer Readable Format (CRF) sequence listings for pending biotechnology patent applications, which were filed in paper form.



B.P.Y.  
25 May 2007



BRIAN P. YENKE  
PRIMARY EXAMINER